

ABSORBENT DEVICE AND METHOD FOR ITS USE

FIELD OF INVENTION

[0001] The present invention relates in general to absorbent devices and in particular to absorbent devices for toilet-related use and for methods of using such devices.

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BACKGROUND OF INVENTION

[0002] Floors, particularly the floor areas surrounding a toilet, are often subject to spills or other stray moisture resulting from a variety of causes.

[0003] Existing floor coverings for the vicinity of toilets in the home are often either hard non-absorbent material such as tile, or an absorbent but non-disposable material, such as a rug or carpet. The former fails to absorb and contain spills, while the latter may contain spills but may do so without revealing the fact or degree of such absorption, leading to an unhygienic and perhaps malodorous condition.

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[0004] An unmet need therefore exists for a means of contending with such unwanted spills in a manner that is hygienic, that renders the undesirable spills detectable and their treatment tractable, convenient and inexpensive.

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SUMMARY OF INVENTION

[0005] The present invention addresses, at least in part, the long felt, but previously unmet needs described above as well as other needs. In particular, the present invention provides a toilet mat comprising matting, the matting comprising disposable absorbent material, for being placed in proximity to a base of the toilet. In another embodiment, the absorbent matting may also comprise a wetness or moisture indicator for exhibiting a detectable indication in response to

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being contacted with moisture associated with a bodily fluid, water from the toilet or other sources.

5 **[0006]** Yet another aspect of the present invention provides a method for enabling a user to maintain the hygienic integrity of a floor area surrounding a toilet base. The method comprises the steps of: placing a disposable liquid absorbent matting, having a wetness indicator, in proximity to the toilet base, wherein the liquid absorbent matting absorbs urine spills occurring during use of the toilet and the absorption activates the wetness indicator; detecting a urine spill on the absorbent matting by observing the wetness indicator in an activated state; and; replacing the absorbent matting with an unused absorbent matting after the urine spill has been detected.

[0007] An object of the present invention is to provide a disposable matting for protecting a toilet floor from urine spills.

15 **[0008]** Another object of the present invention is to provide a disposable matting that visually indicates the area of urine spills on the matting and when the matting should be replaced.

20 **[0009]** It is yet another object of the present invention to provide a disposable matting that encourages a user to adopt the improved toilet habits. Many other objects and advantages will become apparent to those of ordinary skill in this field upon reading the following description and claims in connection with the accompanying figures.

BRIEF DESCRIPTION OF DRAWINGS

[0010] Figure 1 illustrates a side perspective exploded view of a disposable absorbent toilet mat, in an embodiment of the present invention.

25 **[0011]** Figure 2 illustrates a top and front view of a disposable absorbent toilet mat including footprint indicia, in use, in an embodiment of the present invention.

[0012] Figure 3 illustrates the use of a wetness indicator, and of footprint indicia within the disposable absorbent toilet mat, in an embodiment of the present invention.

[0013] Figure 4 illustrates the relative dimensions in an embodiment of a disposable absorbent toilet mat according to the present invention.

[0014] Figure 5 illustrates a flow chart for use of the disposable absorbent toilet mat, in use, in an embodiment of an aspect of the present invention.

DETAILED DESCRIPTION

[0015] Figure 1 presents a side perspective exploded view of a disposable absorbent toilet mat in an embodiment of an aspect of the present invention. In the illustrated embodiment, but without limitation, mat 10 comprises multiple layers and has a thickness of approximately 0.125 (1/8") of an inch, as indicated at 12. Top layer 14 is of a porous material capable of passing liquid spills through to deeper layers of the mat 10. In one embodiment, such passage occurs via micro holes (not shown). This passage of spills to a deeper layer enhances hygiene by allowing a user to stand on the mat without coming into contact with the spilled liquid. Layer 14 permits the spilled liquid to pass through to transition layer 16, which is located directly below top layer 14. Thus, spilled liquid that is received via the micro holes (not shown) in layer 14, is transferred to an absorbent layer 18 via transition layer 16. At absorbent layer 18, the spilled liquid is absorbed in order to confine the spilled liquid to that layer and avoid the liquid from coming into contact with either the floor area under the matting, or the top layer 14 on which the user of the mat 10 may stand. Buffer layer 20, isolates the absorbent layer 18 holding the spilled liquid, from floor contact layer 22, which provides a non-slip surface 24 for ensuring that mat 10 does not slip on the bathroom floor. Top layer 14 also includes an adhesive collar 26 having an adhesive surface 28, which creates a seal between the base of a toilet and collar

26. The utility of the adhesive collar 26 will be further described in relation to Figure. 2.

[0016] Generally, the disposable absorbent toilet mat is made from any material intended to be used until soiled, that is, a small number of time, or ever a single
5 time, single-use or otherwise disposable, as distinguished from a mat or rug of fabric that wouldn't ordinarily be intended to be used only once or a small number of times until soiled. The absorbent material of the disposable absorbent toilet mat may comprise any known material such as those incorporated in diapers, feminine pads or panty liners, or other such articles that absorb moisture away
10 from a top surface that initially comes in contact with the top surface and that most preferably contain a spill. Typically, the layers utilized in disposable absorbent materials may comprise a liquid permeable top layer for passing liquid spills, a liquid absorbent layer for absorbing the liquid, and a liquid impermeable bottom layer for confining the spilled liquid. The liquid absorbent layer may also
15 comprise one or more chemical reagents that can change color when they come into contact with the liquid. The reagents many also exhibit a change in coloration in response to a substance within the liquid.

[0017] Other numbers, arrangements and thicknesses of layers in the mat 10, as known or may become known in the art, are also contemplated by, and fall within
20 the scope of, the present invention. However, the material, or materials are, in accordance with an aspect of the present invention, most preferably disposable materials, as opposed to durable fabric and rubber material used in those toilet mats that are known in the art for repeated, indefinite use.

[0018] The positioning of mat 10 in relation to a toilet 30, in an embodiment of an
25 aspect of the present invention, is shown in Figure 2. Mat 10 has a cut-away region 32 along an edge 34, where the cut-away region 32 abuts toilet base 36. As shown in the figure, the adhesive surface 28 (FIG. 1) of collar 26 adheres the periphery of cut-away region 30 to the bottom region of toilet base 36, thus, creating a seal between the toilet base 36 and the cut-away region 32. In this
30 manner, the seal provides additional stability for keeping the mat 10 in position,

and therefore prevents the mat from slipping on the floor surface. It also provides additional protection from urine spills that may occur in areas that are in relatively close proximity to the toilet base 34.

[0019] The mat 10 may be of any desired shape. For example, mat 10 may be square, rectangular, or other multi-sided shape, oval or round. Also, depending on the location, orientation, and design of the toilet, mat 10 may not have a cut-away region. For example, some toilet units such as urinals may not have a base that is in contact with the floor. Accordingly, the shape of the mat 10 may be conformed for such use. The mat 10 may, for example, have straight sides instead of a cut-away region on one side. In this case, one of the sides of the mat abuts the wall to which one or more urinals is attached and may cover the floor under one or a plurality of urinals. Similarly, some toilet units are attached to the vertical walls, rather than being connected to the floor by means of a toilet base, such as toilet base 36 shown in Figure 1. In this case, as with the urinal, mat 10 may not comprise a cut away region but may still be provided with adhesive strips. In terms of aligning and positioning the mat 10 with the toilet, the toilet base may be referred to as both an actual base, such as toilet base 36, or the area or region underneath the toilet bowl structure for toilet units not having an actual base (i.e., toilet units designed for attachment to a vertical wall). Other toilet units may include children's potties or generally any device designed to accommodate both children and/or adults in the act of releasing bodily fluids.

[0020] Mat 10 also includes optional footprint-shaped indicia 38 for encouraging a male user to stand on during urination. The indicia 38 are provided in order to suggest an appropriate stance during use. Any other indicia, such as advertising, or none at all, can be used.

[0021] In an embodiment of one aspect of the invention, indicia 38 (whether in the shape of footprints or another configuration) may incorporate a visually enhancing material (e.g., phosphorescent, or fluorescent products), which glows in the dark or otherwise exhibits a luminous or reflective effect. This will serve as a means of attracting the person's attention to the existence of the indicia 38.

Indicia having luminous effects are useful when the matting is being used in a darkened room.

[0022] Mat 10 comprises, in one embodiment, a wetness indicator. The mat 10 may be treated with a substance that undergoes a change in color when it is contacted with a liquid. For example, a hydra-table salt mixture may be applied to a liquid permeable layer such as top layer 14 and/or transition layer 16, whereby when the layer comes into contact with a liquid, a visible color change can be visually perceived by the user. Also, chemical reagents, which exhibit a change in coloration upon contact with a liquid as known in the art, may be applied to a layer of the mat 10, such as absorbent layer 18, without limitation. As illustrated in Figure 3, when a urine spill passes through a treated layer (e.g., layer 14), a color change is visually detected, as indicated by wetness indications 40. The intensity of the color change may vary according to the volume of liquid contacting the mat. In this manner, based on the detected wetness indications 40 caused e.g., by urine spills, it can be determined whether or not the mat 10 should be disposed of, and replaced. In addition to a wetness indicator that provides a visually detectable wetness indication 40 on contact with a liquid (e.g., urine), an olfactory indication may also be provided to enhance urine detection. By incorporating an olfactory indicator into mat 10, a particular scent may be released when the mat comes into contact with liquid.

[0023] The wetness indicator is a reactant layer that exhibits a characteristic change in response to coming in contact with urine and/or other liquids that are spilled on the matting. For example, if a urine spill were to occur, the absorbent matting would not merely change color (i.e., yellow) as a result of urine staining, the wetness indicator would react to the urine and generate a detectable change (e.g., color, smell, etc.) Various types of coatings or materials that are known in the art for exhibiting a color change upon hydration can be used. Materials or substances that react to the chemical content of urine may also be incorporated in the matting, according to an aspect of the present invention, not only to provide a visual indication of a urine spill, but also to detect certain

characteristics of the urine. For example, a person or user of the toilet that is dehydrated or suffers from another condition susceptible to detection by a component of the wetness indicator (e.g., diabetes or kidney ailments) may be alerted to the existence of the condition by the mat.

5 **[0024]** As shown in Figure 3, both the wetness indications 40 and the indicia 38 are used to facilitate proper use of the toilet 30 and to alert the user, or others, to excessive use, errors, non-hygienic conditions, or even a medical condition of a user.

10 **[0025]** Figure 4 illustrates approximate dimensions of an embodiment of disposable absorbent toilet mat 10 according to the present invention. These dimensions may vary, or be scaled depending on the type or size of toilet 30, or the space the toilet 30 may occupy, or other factors, without departing from the spirit or scope of the invention.

15 **[0026]** Figure 5 illustrates a flow chart for a method of use of the disposable absorbent toilet mat 10, in an embodiment of an aspect of the present invention. At step 42, a mat having a wetness indicator is placed around the periphery of a toilet base in order to protect the toilet floor from spills. At optional step 44, users of the toilet are encouraged to stand on footprint indicia located on the mat during use of the toilet. At step 46, a user or other responsible party may detect a spill
20 by observing a region of activated wetness indicator in the absorbent mat. As indicated in step 48, the user or responsible party may determine the extent of the spill by observing the are of wetness indicator. If it is determined that the wetness indicator shows any or an excessive amount of spill, at step 50, the mat is replaced with another, unused mat. If the user or responsible party determines
25 that the wetness indicator does not show an appreciable or excessive amount of spill, the mat is not replaced, and as indicated at step 44, the users are continued to be encouraged to use the indicia during use of the toilet.

[0027] In addition to the embodiments of the aspects of the present invention described above, and with respect to the appended figures, those of skill in the

art will be able to arrive at a variety of other arrangements and steps which, if not explicitly described in this document, nevertheless embody the principles of the invention and fall within the scope of the appended claims. For example, the ordering of method steps is not necessarily fixed, but may be capable of being
5 modified without departing from the scope and spirit of the present invention.